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Transportation as a Barrier to Accessing Health Care and the Volunteer Provision of Transportation of Patients to Health Facilities

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Abbreviations

MoH – Ministry of Health

OD – Operational District

R – Riels

VERS – Volunteer Emergency Referral System

Report Summary

Transportation as a Barrier to Accessing Health Care and the Volunteer Provision of Transportation of Patients to Health Facilities

The Centre for International Health at the University of Toronto, Canada, is currently developing a primary health care project in Kep. Working in close cooperation with the Ministry of Health and the Kep government, the Centre for International Health aims to contribute to better health care in Cambodia. The organization plans to be in Cambodia for many years to come and looks forward to expanding our work in the future.

The goal of this study is to determine the needs and opportunity for a community-initiated and managed transportation scheme for patient access to health facilities in the Kep area. This was done by looking at the various means of informal transportation, the cost structure of the transportation presently being used and how it is determined in order to assess the extent to which transportation poses a barrier to accessing health care. The village of Lumpeng, situated near the Ang Koul Health Centre, was chosen as the study site because it was identified as an area where transportation is an important issue in accessing health care, due to its remote location and its long distance from the Kep Referral Hospital.

This study aims to provide baseline information in order to be able to evaluate any future community-based programs for patient transportation and to determine the issues and concerns involved in the development of a program modeled after the “Village Emergency Referral System (VERS)”, currently being piloted in Siem Reap and Otar Meanchey.

Forty-eight interviews were conducted with individuals in 7 different communities with the village of Lumpeng using a standardized questionnaire that was previously developed and validated. Interviews took place at the homes of those interviewed along with an interpreter and a counterpart from the Ang Koul Health Centre. The interviews focused on the types and number of transportation vehicles available, the costs associated with these and the ease of acquisition of transportation of patients to health facilities.

Three focus groups with village members were conducted to facilitate a discussion on the possibility of implementing a community-based patient transportation service in the area, modeled after the VERS. Finally, an interview with a local moto-remorque driver was conducted to obtain a better understanding of the public transportation service in the area.

Interviews revealed many concerns, difficulties and barriers that are present in accessing health care facilities in the area. The cost of treatment and medications, as well as the cost of transportation to health facilities were found to be the most significant barriers to health care, with the distance to the hospital also being a concern. Specifically, the major concerns indicated by the majority of the respondents was the difficulty that is present in getting to the road and finding a moto-remorque in the case of a medical emergency and the high cost that this entails. These difficulties are greatly

increased during the night when traffic on the road ceases and throughout the duration of the rainy season, when flooding limits all transportation in the community.

The focus groups, as well as the interviews with the village chief and moto-remorque driver that were conducted, revealed several issues and concerns regarding the possible implementation of a community-based transportation program. The major concern dealt with the issue that there are very few moto-remorques in the area, so that finding one in a medical emergency is very difficult, even when on the main road. The issue of having a number of specific volunteers in place to carry people to the road in cases of emergency was discussed. It was said on numerous occasions that it is easy to get people around the home to help with carrying a sick or injured individual. As well, there were concerns about the village being quite a large size, and thus having no form of communication apart from direct contact. Both these issues would make it difficult to get a group of specific people together during an emergency.

Before a program such as the VERS can be implemented in an area such as Lumpeng, various issues must be dealt with, the major one being increased accessibility to moto-remorque drivers. Involving the moto-remorque drivers that travel through the areas in the planning and implementation of such a program is essential to its success.

A translation of the report from the Centre for International Health into the Khmer language will follow this document shortly.

Report Summary given to:

- Operational District Office of Kep
- Governor of Kep
- Ang Koul Health Centre
- Lumpeng Village Chief

1. INTRODUCTION

1.1 Background and Problem Statement

In Cambodia, there exists many barriers to accessing health care. Cambodia's recent history, plagued by civil war, political unrest and economic uncertainty, combined with its lack of significant infrastructure poses many problems for the health care system. These problems are augmented in areas outside the major urban centers in the rural villages where most of the Khmer population lives. The barriers to accessing health care are numerous and present to varying degrees; these include, but are not limited to the cost of treatment and medications, the lack of knowledge of and respect for the health care facilities and workers, the inability to leave home because of paid work/housework/child rearing/etc., and the inability to physically get to the health centres due to a lack of adequate, reliable, affordable and timely transportation. This latter point is particularly important when dealing with acute, emergency situations where immediate health care is necessary to prevent further complications, morbidity and even mortality.

This study looked at geographical location as the determinant of health and the extent to which a great distance to health care facilities poses a barrier to health care.

In the municipality of Kep, much like the rest of Cambodia, motorcycles are the most common mode of transportation, particularly for longer journeys. Their easy maneuverability, light-weight and minimal petrol consumption make them a desirable means of transport. Motorcycles do have their limitations and additional and significant problems arise during many emergency medical situations, when patients are not able to sit on a motorcycle, and therefore must find an alternative method. Although many problems in Cambodia's health care system are present, there are steps being taken to ameliorate the situation in which many Khmers are presently living. The mission of the Ministry of Health, Royal Government of Cambodia is a commitment to ensure sector wide equitable, quality health care for all the people of Cambodia through targeting resources, especially the poor and to areas of greatest need.

In order to address the problem of transportation to health facilities, a model for a community participatory transportation program has been developed and is currently being piloted in Siem Reap and Otter Meaney. This program, named the Village Emergency Referral System (VERS) aims to "provide a timely transfer for people in the village who cannot sit or who need an emergency transfer to health services in order to survive the emergency (Overtoom, 2003).

Programs such as VERS and other community participatory programs are becoming more and more popular in the implementation and running of international aid and development projects. Community participation involves local people in the development of appropriate local health services and development activity(NPPHC, 2002). In Cambodia, both the Ministry of Health and the Ministry of Rural Development have implemented projects using the idea and structure of community participation. Their goal is to provide basic health services to the people of Cambodia with the full involvement of the community(Implementation Guidelines, 2002).

Community participation includes active involvement of the members of the community in health activities and is often regarded as necessary in order to make up for the lack of government and other private resources within the health sector(Zakus,

1998). Such community participation is also viewed as an essential component of the wider strategy of primary health care.

A future program for the provision of transportation of patients to health facilities in Kep, Cambodia may provide a suitable arena in which to test and evaluate the current model of community participation that is being conducted in Cambodia and throughout the world.

1.2 Research Objectives

1. Assess the extent to which transportation poses a barrier to accessing health care.
2. To determine the needs and opportunity for a community initiated and managed transportation scheme for acute/emergency patient access to health facilities in the Municipality of Kep and surrounding area.
3. Determine the issues involved in the development of a program modeled after the Village Emergency Referral System (VERS).

1.3 Definition of terms

Moto: A small motorcycle/moped commonly found in Cambodia, used as a frequent mode of transportation.

Motodup: A moto-for-hire, available in all parts of the country. The fares are negotiable and the drivers have no form of certification.

Moto-remorque: a moto pulling a trailer used to transport large objects or large numbers of people. Less common than motodups, but still available almost anywhere in Cambodia.

Riels(R): Cambodian currency. ~4000 Riels = 1 USD

1.4 Methodology

The village of Lumpeng, located in the vicinity of Ang Koul Health Center has been identified by the Operational District Office of Kep as an area where transportation is an issue in accessing health care, due to its remote location and its long distance from the Kep Referral Hospital. For these reasons, this is the population in which the study sample was chosen. A map of Cambodia and the Operational District of Kep can be seen in Appendix 1. Field research took place from the beginning of July to the beginning of August, 2003. All field research was conducted with an interpreter and a Ministry of Health (MoH) counterpart from the Ang Koul Health Centre.

The first phase of this study involved conducting interviews with individuals (when possible, the heads of households) at their homes in the village of Lumpeng in order to understand the extent to which transportation is a barrier to health care. A copy of the

full, standardized questionnaire, that was previously developed and validated can be seen in Appendix 2.

Interviews were conducted in English. Through the use of an interpreter, questions to patients were translated from English to Khmer and answers from patients were translated from Khmer to English. Interviews took place in clusters (communities) throughout the village, with the number of interviews in each cluster representing the size of the community. The location of the clusters was chosen at random by the local MoH counterpart from the Ang Koul Health Centre.

Answers to the questions were recorded in English at the time of interview and later analysed.

The second phase of this study involved the running of focus groups that dealt with the issues that are present in the initiation of a volunteer community transportation scheme modeled after the VERS. The focus groups involved various village members that had been previously interviewed. Preliminary results from the first phase of the study were explained and discussed in order to get a better understanding of the issue. These discussions included considerations of issues such as education, costs and structuring of a program.

In order to get a full understanding and appreciation of the issue of transportation and the situation in Lumpeng, a meeting and interview with the Lumpeng Village Chief was conducted.

Finally, a moto-remorque driver was interviewed to understand the structure of the public transportation system in the area.

1.5 Scope and limitations of the study

- Not all the factors that influence transportation as a barrier to health care in Cambodia can be covered in this study, so the focus is on the financial constraints and availability of various means of transportation. The following limitations need to be mentioned:
- Using an interpreter, even though he was well versed in both the English and Khmer language, there were many potential errors in translation. These were minimized by reviewing the questionnaire and possible answers to the questions before beginning the interviews. When a problem did arise during an interview, it was noted and discussed at the conclusion of the interview. As well, questions were worded in a culturally appropriate way in order to minimize confusion for both the interviewers and those being interviewed.
- Confronted by a foreigner, there may have been many reasons which would cause the respondents to not answer in a completely truthful manner. These include the sense of intimidation by visitors or giving incomplete or untrue answers so as to please the interviewer. Interviews were attempted to be conducted in a quiet atmosphere, though this was rarely the case for, a crowd was quick to form everywhere the interview team went. Attempts were made to avoid this by asking for clarification on answers which did not seem genuine or truthful.

- The field study was limited in time (around 4 weeks) which puts limits on both the depth of the case study and the size of the sample. As well, since the study was undertaken in only one season (the rainy season) there may be limitations in interpreting the results in a more generalized manner.
- Since all interviews were conducted at the same time of day (between 8 am and 4pm) there may have been subpopulations in the community that were not interviewed and therefore not represented in the study. These include individuals who work in the fields or on the ocean all day and are not available at their residences.

2. RESULTS

2.1 Individual Interviews

The 48 households interviewed represent a total of 317 people in the village of Lumpeng. These interviews were conducted in 7 clusters, the smallest of which containing 4 households, and the largest 9. Of the individuals interviewed, 24 were male and 24 were female. Further demographic information including occupation of those interviewed, time taken to get to the road and household transportation can be seen in table 1.

Table 1. Demographic Information of Individuals Interviewed

	N
Total interviewed	48
<i>Time to road</i>	
0 min	9
under 5 min	18
5 – 15 min	16
over 15 min	5
<i>Occupation of individuals interviewed</i>	
Farmer	36
Fisher	8
Shopkeeper	2
Other	2
<i>Private transportation owned by the household</i>	
None	14
Bicycle	23
Moto	12
Boat	2

The time to road is an estimated time that it takes to walk from the respondent's house to the closest main road that is accessible by automobile. "0 min" indicates that the respondents house is located right next to the road. The indicated occupation is the respondents' single main occupation and does not include other minor occupations. If more than one mode of transportation is owned by a household, it is included in the appropriate number of groups under Private transportation owned by the household.

The responses to the five questions concerning the barriers to accessing health care facilities are shown in figure 1.

Figure 1. Barriers to Accessing Health Care Facilities

These five pie-charts show the responses to the five questions concerning barriers to accessing health care facilities. Each chart indicated the percentage of responses for each of the three levels of difficulty.

The utilization of health care facilities by the respondents is summarized in table 2 (health centres) and table 3 (hospitals). In the past 6 months, 17 (35%) of those interviewed have been to a health clinic, while 35 (73%) have been to a hospital. When referring to the difficulties that were encountered in acquiring transportation, the respondents brought up many issues. These include having to carry the sick individual by hammock to the road, having to wait at the road for transport, and increased difficulty depending on the time of day and time of year (specifically at night and during the rainy season).

Table 2. Utilization of Health Centres

Location of Health Centre	N Total	Mode of Transportation			
		Walk	Bike	Motodup	Moto-remorque
Ang Koul	13				
N		7	3	3 (3 own)	0
Avg Cost		0 Riels	0 Riels	0 Riels	
Difficulty		1	1	0	
Avg Time		0.6 hours	0.39 hours	0.39 hours	
Kampot	1				
N		0	0	0	1
Avg Cost					70 000 Riels
Difficulty					1
Avg Time					2 hours
Other	3				
N		0	0	3 (1 own)	0
Avg Cost				13 000 Riels ¹	
Difficulty				1	
Avg Time				1.75 hours	

¹ Range: 9 000 Riels – 15 000 Riels

This table shows the information concerning the transportation to the various health centres that were visited by the respondents. Each health centre is divided into the mode of transportation that was taken to get there. “N” refers to the number of respondents, with the number of people who own their specified mode of transportation shown in parentheses. The average cost was taken from only those who do not own their own transportation, and therefore must pay for it. “Difficulty” is the number of

respondents who had replied that they had some form of difficulty with the transportation to the health centre.

Table 3. Utilization of Hospitals

Location of Hospital	N total	Mode of Transportation			
		Walk	Boat	Motodup	Moto-remorque
Kep N	30	1	1	27 (6 own)	1
Avg Cost		0 Riels	30000Riel	8 500 Riels ¹	25 000 R
Difficulty		1	s	15	1
Avg Time		5 hours	1 4 hours	1.6 hours	2 hours
Kampot N	4	0	0	2	2
Avg Cost				7 500 Riels ²	35 000 Riels ³
Difficulty				1	1
Avg Time				1.75 hours	2.25 hours
Other N	1	0	0	1 (1 own)	0
Avg Cost				0 Riels	
Difficulty				0	
Avg Time				1 hour	

¹ Range: 5 000 Riels – 20 000 Riels

² Range: 3 000 Riels – 15 000 Riels

³ Range: 3 000 Riels – 70 000 Riels

This table shows the information concerning the transportation to the various hospitals that were visited by the respondents. Each hospital is divided into the mode of transportation that was taken to get there. “N” refers to the number of respondents, with the number of people who own their specified mode of transportation shown in parentheses. The average cost was taken from only those who do not own their own transportation, and therefore must pay for it. “Difficulty” is the number of respondents who had replied that they had some form of difficulty with the transportation to the hospital.

Twenty-five of the respondents (52%) reported that, in the last 12 months, they have been concerned about the health of someone in their house, and did not go to the health centre or hospital because of lack of transport.

When presented with the hypothetical situation when a child in the house is sick and has a fever, responses included taking the child to either a hospital or a health centre. Details of the questions asked concerning this situation is summarized in table 4.

Table 4. Hypothetical situation “A” responses.

Location of Health Facility	N total	Mode of Transportation		
		Walk	Boat	Motodup
Kep Hospital	35			
N		0	1	34 (6 own)
Avg Cost			0 Riels	10 500 R ¹
Difficulty			1	18
Avg Time			5 hours	1.6 hours
Ang Koul	11			
N		4	4	3 (2 own)
Avg Cost		0 Riels	0 Riels	5 000 R
Difficulty		0	0	1
Avg Time		0.75 hours	0.6 hours	0.2 hours
Kampot Hospital	2			
N		0	0	2 (2 own)
Avg Cost				0 Riels
Difficulty				0
Avg Time				1.5 hours

¹ Range: 5 000 Riels – 40 000 Riels

This table shows the information concerning the transportation to the various health facilities that would be used in the event depicted in Hypothetical Situation A. Each health facility is divided into the mode of transportation that would be taken to get there. “N” refers to the number of respondents, with the number of people who own their specified mode of transportation shown in parentheses. The average cost was taken from only those who do not own their own transportation, and therefore must pay for it. “Difficulty” is the number of respondents who said that they would have some form of difficulty in arranging the transportation to the desired health facility.

For the second hypothetical situation where a woman is delivering a baby and has complications, all but one respondent said that they would take her to a hospital. The details of these responses are in table 5.

Table 5. Hypothetical situation “B” responses.

Location of Health Facility	Mode of Transportation			
	N total	Walk	Boat	Moto-remorque
Kep Hospital N	43	2	5 (2	37
Avg Cost		0 R	own)	43 000 R ²
Difficulty		2	30 000	36
Avg Time		2 hours	R ¹	2 hours
			3	
			1.5 hours	
Ang Koul N	4	1	0	0
Avg Cost		0 R		
Difficulty		1		
Avg Time		0.5 hours		
Kampot Hospital N	1	0	0	4
Avg Cost				40 000 R ³
Difficulty				4
Avg Time				2 hours

¹ Range: 15 000 Riels – 36 000 Riels

² Range: 5 000 Riels – 100 000 Riels

³ Range: 30 000 Riels – 60 000 Riels

This table shows the information concerning the transportation to the various health facilities that would be used in the event depicted in Hypothetical Situation B. Each health facility is divided into the mode of transportation that would be taken to get there. “N” refers to the number of respondents, with the number of people who own their specified mode of transportation shown in parentheses. The average cost was taken from only those who do not own their own transportation, and therefore must pay for it. “Difficulty” is the number of respondents who said that they would have some form of difficulty in arranging the transportation to the desired health facility.

2.2 Focus Groups

The three focus groups that were conducted involved a total of 25 residents of Lumpeng village in three separate areas. The topics discussed are grouped into the different issues that were raised during the focus groups. The answers to the questions posed, and issues raised are summarized and are not the exact words spoken by the participants.

Focus group #1 Tuesday July 29th, 2003 10:00 am to 11:30 am
Number of adults in attendance: 7

Focus group #2 Wednesday, July 30, 2003 11:15 am to 12:30 pm
Number of adults in attendance: 6

Focus group #3 Thursday July 31, 2003 11:45 – 12:30
number of adults in attendance: 12

(1) Is transportation a problem?

- yes, because it is difficult to find a method of transportation more than a moto
- very difficult to find at times
- in emergencies, it is difficult when you have to carry people by hammock
- someone in the community owns a moto-remorque
- he is not often around, because the trailer is being used
- at times, we cannot find a moto with trailer and have to walk a long way while carrying a person
- It is not very difficult to find people to help and carry an injured or sick person
- the biggest problem that we have is the cost of transportation

it is very difficult to get anywhere

- overwhelming yes
- it is always a problem
- sometimes it is more difficult than others, though it is always a problem during emergencies
- it is more difficult at night
- during the rainy season, it is much more difficult (May to October)

(2) What kind of emergencies are there in the community?

- diseases, high fever, heart attacks,
- very seldom are there accidents
- often complications with deliveries
- delivering babies,
- people get sick: intestinal problems, malaria, fever
- never accidents.
- coughing (usually TB)
- malaria
- delivering babies
- other diseases

(3) What are the steps you take in getting to the hospital?

- if the person needs to be carried, must find many people to carry
- when someone is sick, people will usually volunteer to help
- sometimes, it is necessary to pay people when coming back from the hospital
- when at night or in the rain, sometimes have to pay people with money or food
- have to get the sick person to the road
- then have to find some kind of transport
- may have to send someone very far in order to get a moto-remorque
- carry by hammock and then by moto-remorque
- it is difficult to find people to carry if the distance is great. If close it is very easy

- carriers are volunteers, do not need to pay them, may need 9 to 10 people.

(4) Where is the nearest place to get a moto-remorque?

- Someone nearby owns one.
- May need to go to Phnom Leo, and maybe to OD (30 minutes by moto) area
- there is one in the community, though sometimes it is very difficult to get it if the owner is not there.
- May have to go as far as the OD office in order to find transport
- Normally costs 2000 R per person to Kep
- go to the road and wait
- there are a few moto-remorques in the community
- in emergencies, the ease depends on how much money that you have – with a lot it's not a problem, with very little it's very difficult
- may have to go to Phnom Leo, or to the OD.
- normally from Lumpeng to Kep on Moto-remorque = 2 000 R
- becomes a very big problem during the rainy season when you cannot get anywhere, even by moto-remorque. When the village floods, they do not even have boats in the area, so they have to walk to the beach. There are no boats in the mainland community.
- 40 – 50 0000 R : most people do pay because they have to. If they can't get there, the doctor comes to the village, from the nearby health centre.

(5) What are the issues with people carrying someone when they are sick?

- not a problem to get people, just have to ask the men around for help
- they usually volunteer to help
- it is very easy to find volunteers, the men are willing to help in the community

(6) What happens in cases where it is not an emergency?

- there are motodup drivers in the community, but only a few
- usually have to wait on the side of the road.
- Depends on time of day, it is not predictable.
- they only drive during the day, the roads are empty at night
- there are motodup drivers in the community
- sometimes, use these drivers, but most of the time, wait at the road.
- In the rainy season, it is much more difficult – must carry people to sea or to the end of the flood
- easy during the day, very difficult at night
- there are drivers in the community, people usually take drivers from the village

(7) What do you think of the idea of the program?

- sounds like a good idea
- may be difficult to find volunteers
- may have to walk/ get far distances
- During the dry season, it is much easier
- At night – may not be able to find any type of transportation, especially moto-remorque

(8) Are there any village gatherings? Meetings?

- there are no village meetings

2.3 Meeting with Lumpeng village chief

Thursday July 31, 2003, 12:30 pm

- The village of Lumpeng contains 649 families
- The population of the village is 3314 people
- It is 7 kms from east to west
- It is 4 kms from north to south

Are there any village meetings?

- Yes there are village meetings, during which they talk about issues such as the weather and the rains, food, etc.
- The meetings are not scheduled, they occur once in a while

What forms of communication is there in the village?

- there is no radio and very few phones
- in order to reach someone, you must go physically visit them

2.4 Interview with Moto-Remorque Driver

Friday August 1st, 2003, 11:30 am

What time do you work?

- usual day, from 6 or 7 am to 1 or 2 pm.
- Can drive at night if special arrangements are made.
- The route that is taken is wherever people need to go.
- The cost from Ang Koul to Kep is ~ 1000 R per person (same as everyone else)

Have you ever had to drive someone in a medical emergency?

- Yes, had to take someone during an emergency,
- Cost 40 – 50 000 R is during the night
- Less if during the day
- Types of emergencies: women delivering babies, diseases
- In a situation where an emergency occurred in Ang Koul it is impossible to go there because the road is too difficult
- There are different costs at night – it is more expensive
- During the rainy season, when it floods, the price is the same. This is because there is a lot of competition from other drivers to keep prices low
- A moto-remorque takes more petrol than a normal motodup – approx 2 –3 litres per day

The trailer can carry 10-11 people. Time taken depends on how many people are on the trailer and how many stops need to be taken.

3. DISCUSSION

3.1 Barriers to Accessing Health Care

There are many barriers to accessing health care facilities in the village of Lumpeng, though some are more prevalent than others. The two barriers that are most often problematic involved a common factor, money. The cost of treatment and medications as well as the cost of transportation was said to be at least a mild problem by 87 and 81% of the people interviewed, respectively. This demonstrates that the economic situation in which the community is facing has a large impact how the community members perceive their accessibility to health care.

Another commonly problematic barrier to accessing health care was found to be the distance to the hospital, with 75% of the respondents saying this was at least a mild problem. This problem can be looked at in three ways. First, the physical distance to the nearest hospital is quite substantial. Secondly, the roads that are available to travel to the hospital are in very poor condition. They are all dirt or gravel roads in various stages of disrepair, with pot-holes, ditches and large rocks, which cause even the best of transportation to travel at a slow pace. Finally, there is a definite lack of public modes of transportation, which creates a situation where an already difficult and long trip to the hospital is worsened by the inability to find transport.

Interestingly, this study found that the two barriers which involve missing various daily activities (domestic responsibilities and employment) in order to go to the hospital were not found to be as problematic, with only 48 and 37% (respectively) of respondents indicating at least a mild problem. That being said, the extent of these problems in practice cannot be overlooked, and must be acknowledged when looking at barriers to health care.

3.2 Transportation as a barrier

The lack of adequate, timely, affordable and reliable transportation is a definite barrier to accessing health care in the village of Lumpeng, Cambodia. This was seen in various forms during the study, in the questionnaire and during the focus groups. Both the distance and the cost of the transportation was found to be problematic for almost all respondents.

The issue of transportation is very complex. The combination of a very rugged terrain, poor road conditions, varying weather conditions and a lack of sources of transportation puts limitations on any type of transportation that is available; no one mode of transportation seems to be sufficient to be able to provide transportation in all areas and situations.

The most commonly utilized mode of transportation is the moto. They are relatively inexpensive, fast and maneuverable, though they do have many limitations. They have a limited amount of carrying capacity (though it is common to have 4 or 5 family members on one moto). As well, they are not able to travel in severe weather or road conditions, in storms and in floods.

In order to overcome most of the limitations of the moto, it seems that a four-wheeled vehicle with all wheel drive would be the only adequate alternative. These are extremely expensive and quite rare (apart from those owned by aid organizations) and

can travel through severe road and weather conditions. In reality, even something as expensive and “sophisticated” as a *Land Rover* has its limitations in rural Cambodia. During the rainy season, with flooding, it is not uncommon to have a large part of roads washed away and make-shift bridges constructed. This may cause a problem for larger four-wheeled vehicles because the bridges may not be big enough or strong enough to hold them.

Other modes of transportation include boats (especially during the rainy season), bicycles and walking. All these can be very effective though are very limited to short distances, and therefore are not adequate to get to the hospital. In summary, there is no one mode of transportation that is available that is both adequate and affordable. Therefore, Khmers living in rural areas must compromise with what is available, limitations and all.

3.3 Transportation during an emergency medical situation

This study has shown that transportation to the hospital during an emergency medical situation is the most problematic issue concerning transportation, specifically when the patient cannot sit on a moto. Of the 48 people interviewed, 45 of them said that it would be difficult to get to the hospital if someone could not sit on a moto (as in Hypothetical Situation B of the questionnaire). As well, the issue was raised on various occasions.

An adequate form of transportation must be found and paid for during an emergency. There is a limited number of moto-remorques available in the community and therefore precious time must be taken in order to find one. When one is found, the price is set by the driver and is often at such a high cost that makes it very difficult to afford. Since there is no other alternative, no competition, people are often forced to pay astronomical prices to get to the hospital.

3.4 Volunteer Emergency Referral System (VERS)

A volunteer emergency referral system (VERS) is a community participatory program whose aim is to put in place a system to transport patients from their homes to the hospital in the case of a medical emergency. This study shows that the village of Lumpeng (and probably many similar rural Cambodian villages) is an appropriate area to set up such a program, and would truly benefit from it. The village is in a remote location, and it is very difficult to get to the hospital, which can have many deleterious effects of the individual patients and on the community as a whole.

The VERS involves the formation of a VERS team, which includes the village chief and volunteers whose job it is to carry the patient to the road. Other issues, such as the possible formation of an equity fund, selection of the volunteers and the development of a VERS is discussed in the paper by Rob Overtoom(2003).

This study has demonstrated through the focus groups and the key informant interviews, that there are further issues that need to be discussed and addressed before a VERS can be implemented in a rural Cambodian community such as Lumpeng.

The first of these issues is the recruitment of volunteers for the transport of patients from their homes to the road. This is currently being done in Lumpeng using hammocks, which seems to be an effective and useable method. Overtoom (2003)

explains that certain members of the community, preferably young adults would act as carriers and would ‘jump into action’ whenever a medical emergency were to occur. In Lumpeng, this seems to be quite a feasible thing to do. A problem arises when it comes to trying contact the volunteers during an emergency. Since there are no telephones or radios, and the village covers a large geographic area, it may be very difficult to get specific people together in a short period of time. A suggestion to this is to speak to as many of people in the village as possible to try and get everyone mobilized in the effort to carry people to the road in an emergency. That way, when there is an emergency, a patient can be carried to the road by people that are already in close proximity. This way, there will not be time lost in finding the volunteers to bring someone to the road. Since there seems to be a strong sense of community and a predominant “help-your-neighbours” mentality in the village, this has the potential to work quite well.

The next issue is one that seems much more problematic, and involves the acquisition of a moto-remorque (or other form of transportation) to bring a patient from the road to the hospital. Presently, the VERS protocol (Overtom, 2003) states that “agreements have to be made with people who have a moto-remorque, who transport the patient...to the hospital for a pre-fixed price. It cannot be presumed that is an easy task to do this. Since there are very few moto-remorques in the community, patient transport has to be done by the limited number of moto-remorque drivers that may be passing by the village.

In order to get a fair and standard price, there will need to be a lot of communication between the village and the moto-remorque drivers in the area. Since the drivers are not an actual part of the community, they have less to benefit from giving a fair price to patients.

Another issue that involves the moto-remorque drivers is where to find them. Waiting by the side of the road for transportation to arrive is often not productive, and transportation must be actively sought. This is because it may take hours to get transport, and can be even more during the night and/or rainy season.

There are areas outside of the village, in surrounding communities, where the drivers congregate. It may be necessary to send a person to get a moto-remorque driver when others are carrying the patient to the road in order to maximize the effort and minimize the amount of time taken.

The final issue with moto-remorque drivers has to do with the safety of the patient while in the moto-remorque. Since the roads are in very poor condition, a bumpy ride may cause further damage/complications to the patient during the transport. For this, it may be necessary to have pillows or blankets available in the community in order to put in the moto-remorque so as to soften the ride and prevent unnecessary morbidity.

In addition, there are potential situations where the VERS program would not be adequate. These include when the flooding is too great, or the medical problems are too severe. In these types of situations, a different method to achieve access to health care may be desired. If there is no way that a patient can get to the hospital, it may be necessary to bring the doctor to the patient. The development of a traveling doctor service in cases of medical emergencies may be both appropriate and beneficial in some circumstances.

3.5 VERS baseline data and evaluation

One of the problems that the VERS program encounters is that it is difficult to evaluate its efficacy and usefulness. The reason for this is because it is difficult, and maybe impossible to determine baseline data concerning the lack of transport. It is difficult to quantify how many deaths could have been avoided, or how many complications could have been prevented.

Currently, it is proposed that data from the record books of the VERS be used as a form of evaluation. These records include the number of cases, types of emergencies, the outcome of the transfers, etc. (Overtoom, 2003)

There are of course other ways to evaluate the program. These included measuring the actual time that it takes for a patient in a medical emergency to get to the hospital before and after the program is implemented. This poses problems, because medical emergencies cannot be reliably predicted and therefore cannot be easily studied. The measurement of the time taken to get to hospital would have to be approximated by the individuals that are present at the time of the emergency, so that the accuracy would have to be presumed as being quite low.

Another option would be to evaluate the program on the individual's perception of the difficulty that is present in getting to the hospital during a medical emergency. It may be assumed that if the VERS is to provide a timely transfer for people in the village with an emergency medical condition from their home to the hospital, than it should also provide confidence in being able to get to hospital with less difficulty. The problem with this type of evaluation is of course that it is very subjective and that a person's perception is based on many factors, though this form of evaluation could be used in conjunction with others.

4. CONCLUSIONS AND RECOMMENDATIONS

The village of Lumpeng (and probably many remote Cambodia villages like it) is faced with many challenges and barriers to accessing health care. Its remote location and long distance from the nearest hospital poses many problems, in particular during an emergency medical situation where a timely transport to the hospital can mean the difference between life and death. Presently, there is no organized method or program of getting from the village to the hospital, though the community as a whole would greatly benefit from such a program. This study has shown that the development of a Volunteer Emergency Referral System, presently being run in various locations throughout Cambodia, is a realistic, desirable and needed endeavour in Lumpeng. The following recommendations are intended to be additions to the VERS framework in order to address the issues that are specific to the area studied.

Recommendations:

- for further information concerning these, please see the discussion section of this report.
- 1. Instead of a limited number of specific volunteers to carry patients from their homes to the road, recruit as many able individuals in the community as possible.
- 2. Involve the moto-remorque drivers of the area (not only the community) in the planning and implementation of the VERS because their cooperation is essential for the running of such a program.

3. Include, as a volunteer, a person whose task is to go and seek out a moto-remorque driver in case one is not available on the road.
4. Have pillows and blankets made available in order to increase the patient's safety so that the ride in the moto-remorque does not cause harm and medical complications.
5. Include in the evaluation of the VERS, the questioning of community members concerning their perception of the difficulty that is present in accessing health care (hospital) during a medical emergency.

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Appendix 1 : Questionnaire

Transportation Questionnaire

Interview number:

Date and time:

Interviewer(s):

Interpreter(s):

Others present at interview:

Location of interview:

Distance to health centre:

To hospital:

Identification Data

1. What is your name:
2. What is your occupation:
3. Are you married:
4. Do you have any children, if yes, how many:
5. Including yourself, how many people live in your home:
6. Do you have a private means of transport, if yes, what type.

Barriers to accessing health centre and hospital

(1) is not a problem **(2)** is a mild problem **(3)** is a severe problem

- a) cost of treatment and medications
- b) distance is too great
- c) transportation is too expensive
- d) domestic responsibilities/things to do at home (housework, taking care of children)
- e) Cannot afford to miss work

Utilization of health facilities

1. Have you, or someone in your house been to a health centre in the last 6 months:

Where:

Why:

.....a hospital:

Where:

Why:

Health Center

Hospital

1. How did you get there
2. How long did it take to arrange the transportation
3. How much did it cost
4. How long did it take

5. In the last 12 months, have you been concerned about your health or the health of someone in your house, and did not go to the health centre because of a lack of transport?

Hypothetical Situations

(A)

A child in your house has a cough and a high fever.
Would you take them to the health center?

1. How would you get there
2. How would you arrange it
3. How much would it cost
4. How long would it take

(B)

A woman in your house is delivering a baby and she begins to bleed a lot.
Would you go to the health center or hospital?

1. How would you get there
2. How would you arrange it
3. How much would it cost
4. How long would it take